

Swift-Water Safety & Flood Preparedness Guide

A CITIZEN'S HANDBOOK FOR THE ANNUAL SNOWMELT AND RUNOFF SEASON



Inside > > >

History of High Water Events in Summit County

Public Works Flooding Action Plan

Law Enforcement Action Plan

Locating, Constructing and Using Sandbags

Household Checklists, Tips and Resources



Summit County Swift-Water Safety & Flood Preparedness Guide

Introduction

This year's spring snowpack in Summit County is below average, but it's important to understand that localized flooding and swift-water hazards still deserve our attention. Summit County and local municipalities have developed this year's Summit County Swift-Water Safety and Flood Preparedness Guide to inform the community about the potential impacts of high water in late spring and early summer, as well as how to prepare for them. Your local government agencies have prepared a plan of action in anticipation of possible flooding. But there are important steps that individuals, families and businesses must take to ensure that they too are prepared.

Summit County typically experiences the most significant effects of snowmelt during late May and early June, driven by warm temperatures and precipitation. But accurately predicting spring weather in alpine environments is nearly impossible, so it's difficult to know exactly when we'll see high flows in Summit County's creeks and streams. The effects of the mountain pine beetle epidemic make us more vulnerable to flooding. With fewer trees to absorb the water, and no tree canopy to protect the snowpack from sun in many areas, snowmelt may occur at an accelerated rate.

Local and state officials have been monitoring flows in all waterways and are prepared to respond to flooding. During April, May and June, the public works departments in the county are busy removing debris and obstructions in waterways and culverts. They have also set up sandbag stations throughout the county for use by residents, businesses and property owners. In the case of a significant flooding event anywhere in Summit County, we will establish a fire-rescue and law-enforcement incident command to respond to and manage the event.

Within this guide, you'll find information that will help you prepare for flooding. We also encourage you to visit www.FEMA.gov to find Flood Insurance Rate Maps (FIRMs) that can assist you in locating your property and evaluating its risk of flooding and your requirements for flood insurance. You can also call the planning department in your town or the County for flood-related information about your property. For additional personal preparedness information, visit the American Red Cross website at www.redcross.org or the Summit County Office of Emergency Management website at www.SummitCountyCo.gov/EmergencyManagement.

On behalf of Summit County government and the towns of Breckenridge, Dillon, Frisco, Blue River and Silverthorne, thank you for your cooperation and concern.

Flood Preparedness Contacts

Summit County: 970-668-3590

www.summitcountyco.gov

Town of Blue River: 970-485-5974

www.colorado.gov/townofblueriver

Town of Breckenridge: 970-453-2251

www.townofbreckenridge.com

Town of Dillon: 970-468-2403

www.townofdillon.com

Town of Frisco: 970-668-5276

www.frisco.gov

Town of Silverthorne: 970-262-7300

www.silverthorne.org

History of High Water Events in Summit County

An understanding of average peak flows and historic maximum peak flows in our rivers and streams can be helpful in assessing the level of risk associated with current conditions. The timing, rate and duration of peak flows are influenced by a variety of factors, including snowpack, spring weather and the effects of climate change. Reservoir managers must account for these variables in their work to store water and meet the water demands of their service areas.

In the table below, you'll find stream gage information for each local river basin, measured in cubic feet per second (cfs), provided by the Colorado Division of Water Resources. Gage links will direct you to the USGS website, where you can view current flows.

| River Basin | Stream Segment | Years of Record | Historic Peak Flow | Average Peak Flow | USGS Gage |
|---------------------|--|-----------------|---------------------------|-------------------|---|
| Upper Blue Basin | Blue River below Goose Pasture Tarn | 34 | 681 cfs (June 18, 1995) | 234 cfs | BLUABLCO http://waterdata.usgs.gov/nwis/uv?09046490 |
| | Blue River below confluence with Swan River | 60 | 1,390 cfs (June 18, 1995) | 525 cfs | BLUNDICO http://waterdata.usgs.gov/nwis/uv?09046600 |
| Lower Blue Basin | Straight Creek | 31 | 416 cfs (June 17, 1995) | 146 cfs | STRABLCO http://waterdata.usgs.gov/nwis/uv?09051050 |
| | Blue River below Dillon Reservoir | 55 | 2,010 cfs (May 25, 1984) | 1,162 cfs | BLUDILCO http://waterdata.usgs.gov/nwis/uv?09050700 |
| | Blue River below Green Mountain Reservoir | 75 | 4,040 cfs (July 12, 1995) | 1,878 cfs | BLUGRECO http://waterdata.usgs.gov/nwis/uv?09057500 |
| Snake River Basin | Keystone Gulch | 60 | 311 cfs (June 17, 1995) | 51 cfs | KEYGUDCO http://waterdata.usgs.gov/nwis/uv?09047700 |
| | Snake River below confluence with North Fork Snake | 70 | 1,250 cfs (June 10, 1952) | 546 cfs | SNAMONCO http://waterdata.usgs.gov/nwis/uv?09047500 |
| Tenmile Creek Basin | Tenmile Creek below North Tenmile Creek | 60 | 1,910 cfs (June 16, 1965) | 943 cfs | TENFRICO http://waterdata.usgs.gov/nwis/uv?09050100 |

To view historic flow data and current-year forecasts for other rivers in the Colorado River Basin, visit <https://www.cbrfc.noaa.gov/rmap/peak/peaklist.php>.

Public Works Flooding Action Plan

Public works staff in each jurisdiction are tasked with protecting and maintaining public infrastructure during the spring runoff season. They may also provide some assistance to residents and property owners, but it's important to keep in mind that property owners are responsible for protecting and maintaining their own private property.

Primary Responsibilities of Public Works Staff

- Monitoring rivers and streams in the county
- Removing debris that might impede the flow of water in creeks and culverts under public rights-of-way
- Evaluating anticipated flood threats and levels of flooding and determining needs
- Providing up-to-date estimates about flooding potential and anticipated areas of flooding
- Establishing priorities for essential facilities, access roads, bridge structures and culverts
- Providing empty sandbags that local residents and businesses can fill at sand piles throughout the county
- Patrolling lakes after floods for floating debris that may be a hazard to boaters

Public Works Contact Information During Business Hours

- **Town of Blue River**
 - Road Manager: 970-547-0545
- **Town of Breckenridge**
 - Police: 970-453-2941
 - Public Works: 970-453-3170
- **Town of Dillon**
 - Police: 970-468-6078
 - Public Works: 970-468-2403
- **Town of Frisco**
 - Police: 970-668-3579
 - Public Works: 970-668-0836
- **Town of Silverthorne**
 - Police: 970-262-7320
 - Public Works: 970-262-7340
- **Summit County**
 - Sheriff's Office: 970-453-2232
 - Road & Bridge Department: 970-668-3590



After-Hours Contact Information

Outside of regular business hours, call the Summit County 911 Center's non-emergency line at 970-668-8600. In the event of an emergency, call 911.

Law Enforcement Flooding Action Plan

In the event of a flooding situation, local police departments and the Summit County Sheriff's Office have the following duties:

- Protect life, health and well-being of the community
- Minimize the threat to people and property in response to flooding
- Continue to provide essential law enforcement services.

Law Enforcement Priorities

- Evaluate threat level
 - **24-hour stream watch during peak runoff period**
 - Communicate with affected agencies
 - Obtain hydrologic information from relevant sources
- Identify affected areas
 - Evaluate life-threatening potential
 - Evaluate need to evacuate
 - Shelter
 - Special needs populations
 - Food and water
 - Temporary housing
 - Sanitation facilities
 - Secure affected areas
 - Traffic
 - Crowds
 - Establish and secure access to affected areas
- Warn and advise the population
 - Media
 - Summit County Alert
- Direct use of personnel and other resources
 - Logistics



- Incident Command
- Emergency Operations Center
- Communications system
- Assistance from local agencies
- Assistance from state agencies
- Secure property impacted by flooding
 - Public property: local government infrastructure
 - Private property: prevent looting
- Continue to provide essential law enforcement services
 - Prioritize response to requests for service
 - Additional personnel and other resources from local agencies
- Develop re-entry plan for affected areas

Sand and Sandbags

Several local agencies provide sand and sandbags to Summit County residents and property owners. After a flooding threat has passed, you may take sandbags to the Summit County Resource Allocation Park (SCRAP), 639 Landfill Rd., Dillon, for free disposal. You may also take sand back to the location where you originally procured it.

Town of Blue River

Sand and Sandbags available to residents. Call 970-547-0545.

Breckenridge Public Works

Sand and sandbags are provided to residents, with a limit of 100 per household. Sand and sandbags are available at Breckenridge Public Works, 1095 Airport Road. Call 970-453-3170.

Buffalo Mountain Metro District

Residents can obtain sand and sandbags at 106 Adams Ave. Call 970-513-1300.

Dillon Public Works

Sand and sandbags are available to residents at the Road and Bridge Shop, 640 County Road 51, or at the Dillon Cemetery. Call 970-468-2403.

Frisco Public Works

Sandbags are available at the Frisco Public Works facility, located at 102 School Road. First 100 bags are free to Frisco property owners only. Then 100-bag bundles are available for \$0.50 per bag (\$50 total). Sand pile is located at Frisco Public Works. Call 970-668-0836.

Silverthorne Public Works

Free sandbags are available to residents at the Public Works shop, 264 Brian Ave. Sand piles are available at two locations: Hamilton Creek Rd. & Hwy. 9 (North Pond); Public Works lot just south of the Joint Sewer Authority facility (i.e., Cottonwood site). Call 970-262-7340.

Summit County Road & Bridge

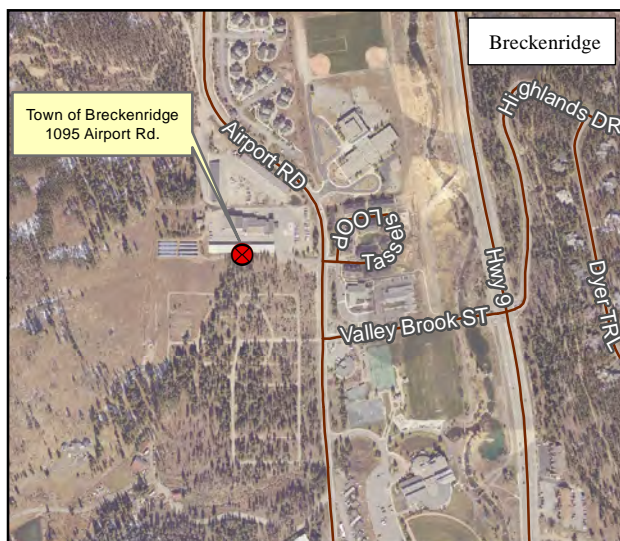
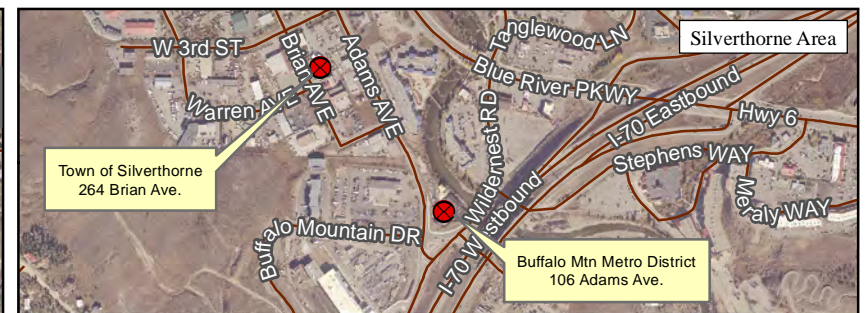
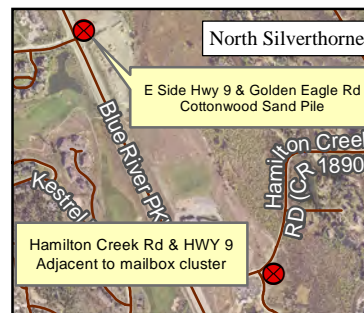
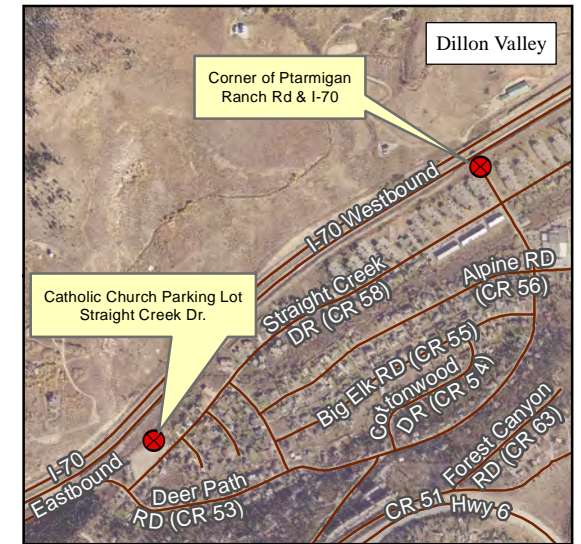
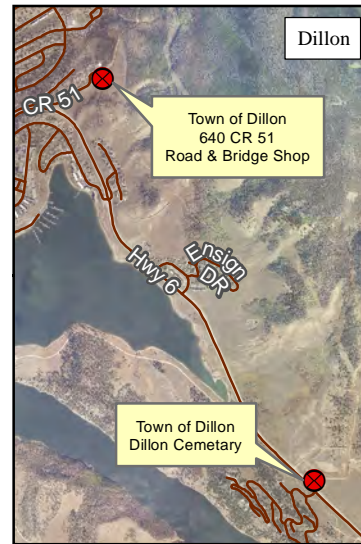
Sandbags are available to all county residents at the Road & Bridge office, 37 Peak One Drive (County Commons building), Frisco. For each household, the first 100 bags are free; additional bags are \$0.50 each. Call 970-668-3590.

Sand piles are available at the following locations:

- Blue River: Quandary Road (CR 626) and Highway 9
 - Breckenridge Public Works: 1095 Airport Rd.
 - Summit County Commons Campus: Road & Bridge shop, 0218 County Shops Rd. (CR 1003)
 - Summit Cove: Cove Boulevard by Snake River Wastewater Treatment Plant
 - Dillon Valley: Old Catholic church parking lot, Straight Creek Drive (CR 58)
 - Dillon Valley: Ptarmigan Ranch Road and I-70
 - Keystone: Across from the west end of Gondola parking lot
 - Copper Mountain: North Alpine parking lot, south of Copper Road.
-

Summit County

Sand Pile Locations



SAND BAGS MAY BE PICKED-UP AT:

- 1) Lake Dillon Fire Stations
- 2) Road & Bridge @ County Commons
- 3) Keystone Road Maintenance
- 4) Public Works Buildings at Breck, Frisco, Dillon and Silverthorne
- 5) Buffalo Mountain Metropolitan District



Constructing Sandbag Emergency Levees

During a flood event, sandbags can be used to help prevent water from accessing an area you are working to protect. For sandbags to be effective in helping to control flood waters, it's important to construct a proper sandbag levee.

FILLING SANDBAGS

Fill sandbags one-half to two-thirds full. Tie at the top of the bag so that it will lay flat when put in place. Overfilled bags can lead to gaps in a levee, allowing water to seep through.

RIGHT >

1/2 to
2/3 full

Weight:
35-40 lbs.



WRONG >

Completely
full

Weight:
70-75 lbs.



WRONG >

1/2 full

Tied too low



PLACING SANDBAGS

Sandbags should be placed flat on the ground, overlapped, tamped into place and stair-stepped.

RIGHT >



Side View:
Stair-stepped

< No gaps >



Top View:
Overlapped

WRONG >



Side View:
Bag on end

< Gaps >



Top View:
Not overlapped

PREVENTING LEVEE SEEPAGE

Sandbag levees can be wrapped in polyethylene (poly) sheets to prevent water seepage through the levee. Poly comes in rolls, 20 feet wide and 100 feet long. Place your first sheet of poly at the furthest downstream section of your levee. Then work your way upstream with new sheets, overlapping the previous sheet by two or three feet. Hold the poly in place at its edges and at the overlaps with additional sandbags.

SIDE VIEW >



TOP VIEW v

Sandbags hold poly in place v

River flow >>>

< Poly overlapped

Sandbags >



SANDBAG QUANTITIES

Estimated number of sandbags per linear foot of levee

| HEIGHT (FEET) | BAGS REQUIRED |
|---------------|---------------|
| 1 | 5 |
| 2 | 10 |
| 3 | 21 |
| 4* | 36 |
| 5* | 55 |

*Preferably, a sandbag levee should not exceed 3 feet in height. Five feet is the maximum practical height of a sandbag levee. If you need a higher levee, it's best to pursue alternate construction means and materials.

Flood Preparedness for Residents and Property Owners

Making preparations in advance of a flooding event can make a big difference if an emergency strikes. All Summit County residents should take the following actions prior to an incident:

- Prepare an evacuation plan from your home to a safe area.
- Purchase flood insurance, if desired.
- Make a list of personal property to help with insurance claims.
- Choose a relative or close friend out of the area as a contact person for family members and friends.
- Prepare an emergency kit:
 - Flashlight with batteries
 - Non-perishable foods
 - Bottled water
 - First aid kit.
- Determine who will be responsible for important documents, clothing, food, family pets, etc.
- Once you formulate your plan, rehearse it!

For more information on flood preparedness, visit the Colorado Division of Homeland Security and Emergency Management at www.colorado.gov/dhsem/readycolorado.

What to Do During a Flood Emergency

In the event of a flood emergency, residents and property owners should take action to protect life safety and property:

- Organize your homeowners association, neighbors and friends to assist with filling and placing of sandbags.
- Cooperate with law enforcement, public works and other emergency personnel.
- Volunteer your time and energy to assist in efforts to protect public facilities and private property.



*Taryn Gillette
Summit High School Class of 2006*

Flooding and Swift-Water Safety Tips

During runoff season, keep the following safety tips in mind to protect yourself and your family, pets and property.

Staying Safe While Driving

- Never attempt to drive through high water. Two feet of water can carry away most cars.
- Do not drive around barricades. They are there for your safety.
- If your car stalls in rapidly rising or moving water, abandon it immediately and climb to higher ground.
- Never drive through flooded roadways. Road beds may be eroded or washed out under the surface of flood waters.

Keeping Up On the Weather

- Stay informed about current weather conditions and weather forecasts. During runoff season, stream flows tend to be especially high during extended periods of warm weather and during rain events.
- Monitor NOAA Weather Radio or local media sources for vital weather info.

Addressing Utility-Related Concerns

- Stay away from ground-level transformers that are inundated by flood waters.
- If your basement is flooded, try to turn off the electric power to the house at the outside electrical panel. If the electrical panel is in the flooded area, do not go near the panel.
- If you have natural gas or propane fired appliances, try to turn off the supply to the house at the meter or at the tank.

Staying Safe on Foot and While Recreating

- Keep children and pets away from fast-moving streams, high water, storm drains, culverts and ditches. Hidden dangers could lurk beneath the water's surface.
- Do not attempt to cross swift water on foot. Even six inches of flowing water can knock you off your feet.
- Be especially cautious at night, when it is harder to recognize flood dangers.
- Stay away from flood-prone areas, including dips, low spots, valleys, ditches and washes. If flooding occurs, get to higher ground.
- When boating on lakes or reservoirs, watch out for logs and floating debris that has been dumped into the water by fast-moving rivers and streams.
- When recreating in or around the water, use the proper size and type of personal flotation device (PFD, or life jacket).
- When boating on rivers and streams, watch out for logs, trees and other debris that have become lodged in the river where they can block passage of you or your boat.
- Fishermen should wear wading belts to prevent water from entering waders during a fall.
- Do not camp or park your vehicle along streams and washes, particularly when threatening conditions exist.



Flood Preparedness and Swift-Water Safety Resources

Many information resources are available to assist you and your family before, during and after a flood event.

Stream Flows and Weather Conditions

- National Weather Service's Advanced Hydrologic Prediction Services: <http://water.weather.gov/ahps/>
- USGS Surface Water Data: <http://waterdata.usgs.gov/co/nwis/discharge>
- Colorado Water Conservation Board: <http://cwc.state.co.us>, 303-866-3441



Other Resources

- FEMA Flood Insurance Rate Maps: www.summitcountycolorado.gov/floodplain
- National Weather Service Flood Safety: <http://www.floodsafety.noaa.gov>
- Federal Alliance for Safe Homes: www.flash.org, 1-877-221-SAFE
- Flood Insurance: www.floodsmart.gov
- Emergency Preparedness: www.fema.gov, www.redcross.org
- Colorado Water Conservation Board: www.cwc.state.co.us
- Flood Information: www.floodsafety.com
- Institute for Business and Home safety: www.ibhs.org
- U.S. Army Corp of Engineers:



<http://www.usace.army.mil/Missions/EmergencyOperations/Floods.aspx>

- Flood Recovery and Related Health Issues: <https://emergency.cdc.gov/disasters/floods>
- Red Cross Flood App: <http://www.redcross.org/prepare/mobile-apps/flood>

FEMA Flood Insurance Rate Maps

The Federal Emergency Management Agency (FEMA) has identified more than 1,000 properties in Summit County as being located in a regulatory floodplain. This designation has important implications related to potential flood hazards, flood insurance requirements, flood insurance rates, property sales and obtaining mortgages from federally regulated or insured lenders.

Visit www.SummitCountyCO.gov/floodplain to find FEMA's current digital flood hazard maps for Summit County, which display special flood hazard areas (SFHAs).

Summit County and local town governments have flood insurance rate maps available for review and can answer general questions from the public. However, lending institutions (not local governments) determine whether flood insurance will be required for a given property and the related liability potential. For assistance in determining whether your property is in an SFHA, contact the jurisdiction in which your property is located:

Breckenridge

Engineering Department
970-453-3191
ginny@townofbreckenridge.com

Silverthorne

Susan Pearson, Public Works
970-262-7354
spearson@silverthorne.org

Dillon

Dan Burroughs
970-468-2403
danb@townofdillon.com

Unincorporated Summit County

Robert Jacobs, Summit County Engineering
970-668-4212
Robert.Jacobs@SummitCountyCO.gov

Frisco

Bill Gibson, Community Development
970-668-5276
billg@townoffrisco.com

